PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION.

Improvements in or relating to Devices for Testing the Brakes of Road Vehicles.

We, WILLIAM FROST, British subject, and HARVEY FROST & COMPANY (1924) LIMITED, a British company, both of 148—150, Great Portland Street, London, W. 1, do hereby declare the nature of this invention to be as follows:—

This invention is for improvements in or relating to devices for testing the brakes of road vehicles.

An object of the invention is to provide a device which is inexpensive and is simple in construction and operation for the purpose of testing the brakes of the wheels of road vehicles, more particularly the brakes for the road wheels of motor vehicles. A further object is to enable, by the use of such a testing device the effort of the brake to be measured when fully or only partly applied, and also to enable the braking effort on the several wheels of a vehicle, for any extent of application of the brakes, to be individually measured for comparison in order that the brake mechanism may be adjusted to give an equal or other desired relative braking effort on the several wheels.

The testing device according to the invention is adapted to be applied to each road wheel individually and comprises a member adapted to be secured to the wheel, means for rotating said member and the wheel with it and means for measuring or giving a comparative indication of the force required to produce rotation of the wheel against the action of the brake on it.

In another embodiment of the invention the device may comprise a plate or similar member having means by which it may be secured to a road wheel. Pivoted to the plate at a point which will correspond to the axis of the wheel are two levers, one of which constitutes a handle for rotating the wheel. The other lever is provided with means whereby it may be locked to the plate, e.g. a slidable pin adapted to engage in any one of a number of apertures in the plate. A spring balance or the like is linked between the two levers for the purpose of giving an indication of the force which is applied when the wheel is turned by manipulation of the handle lever and thus also an indication of the retarding effect of the brake.

Dated this 5th day of July, 1927.

BOULT, WADE & TENNANT,
111 & 112, Hatton Garden, London,
E.C. 1,
Chartered Patent Agents.

COMPLETE SPECIFICATION.

Improvements in or relating to Devices for Testing the Brakes of Road Vehicles.

We, WILLIAM FROST, British subject, and HARVEY FROST & COMPANY LIMITED, formerly Harvey Frost & Company (1924) Limited, a British company, both of 148—150, Great Portland Street, London, W. 1, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention is for improvements in or relating to devices for testing the brakes of road-vehicles.

It has been proposed to provide a device for testing the action of a brake upon the wheel of an automobile, which device comprises means for rotating an automobile wheel continuously under brake resistance and means for indicating the force required to rotate the wheel. In this known construction there is provided a head that is engaged with the road-wheel by means of outwardly extending adjustable arms carrying clamps adapted to grip the tyre of the wheel, a main driving shaft arranged for operative connection with said head, an electric motor for rotating said shaft through gearing that

[Price 1/-]

includes a yielding element which is arranged to operate an indicator in response to the variations in the turning effort applied to the main driving shaft.

An object of the invention is to provide a device which is inexpensive and is simple in construction and operation for the purpose of testing the brakes of the wheels of road-vehicles, more particularly the brakes for the road-wheels of motor-vehicles.

According to the present invention, a device for testing the brakes of road-vehicles comprises an external driving attachment (e.g. a disc) adapted to be operatively connected with any one road-wheel of a vehicle at a time (e.g. to the tyre at a plurality of points), two levers pivoted to said attachment co-axially with the wheel, one of which levers constitutes a handle, or is operatively connected to a handle or the equivalent, whereby the road-wheel can be manually rotated, and a measuring appliance (e.g. a spring-balance) linked between the two levers to give an indication of the turning effort applied when the road-wheel is braked.

The invention will now be more fully described with reference to the accompanying drawings which are of a purely diagrammatic character.

In the drawings:—

Figure 1 is a side elevation of one arrangement according to the invention:

Figure 2 is a similar view of a modification; and

Figure 3 is an end elevation, partly in section, of the construction shown in Figure 2.

Like reference numerals indicate like parts throughout the several views.

In the embodiment shown in Figure 1, the brake-testing device comprises a disc, or similar member, 10, having means (e.g. bolts 11) whereby it can be secured to a road-wheel 12 with its centre on the axis of said wheel. For example, the plate may be arranged for attachment to the hub portion of the wheel. Pivoted to the plate 10, at a point on the axis of said wheel, are two levers 13, 14 whereof the lever 13 constitutes a handle for rotating the wheel. The other lever 14 is is provided with means whereby it may be locked to the plate 10, e.g. a pin 15 adapted to engage slidably in any one of a number of apertures 16 in the plate 10. A spring-balance 17, or other measuring device, is linked between the two levers 13, 14 for the purpose of giving an indication of the force which is applied when the wheel is turned by manipulation of the lever 13, and thus also an indication of the retarding effect of the brake.

In Figures 2 and 3, an embodiment of the invention is shown which can be readily applied to any ordinary vehicle wheel whatever its size, or general construction. The disc, or similar member, 10, has integral therewith three radial arms 18, each of which carries at its outer end a block 19 shaped on its underside to conform approximately to the tread of a tyre. These blocks may be made of any suitable material, for example, metal, or metal faced on the underside with rubber. Each block 19 has a forwardly-extending lug 20 provided with holes 21 through which the outer ends of the radial arms 18 can be passed. The said outer ends are screwthreaded and provided with nuts 22, whereby the blocks 19 can be screwed down tightly on to the tyre. The provision of two or more holes 21 in each lug enables the disc 10 to be arranged at a greater or lesser distance from the wheel as required to allow for wheels which project more or less from the face of the tyre. The radial arms 18 are spaced 120° apart and it will be appreciated that when the blocks 19 are properly adjusted the disc 10 is disposed in axial alignment with the road-wheel. The disc 10 has a centrally arranged stud 23 on which are pivotally mounted two levers 13 and 14, the lever 13 constituting, as in the construction illustrated in Figure 1, a handle for manipulating the device. Integral with the disc 10 is a ratchet wheel, or sector 24, which is engaged by a pawl 25 pivotally mounted at 26 on the arm 14. A spring-balance 17 (not shown in Figure 3), or other measuring device, is linked between the two levers 13 and 14. It will be appreciated that this construction can be readily applied to any wheel, and that the pawl-and-ratchet device enables the brake to be tested at various parts of the drum without interfering with the setting of the testing device.

Obviously, when using either of the constructions shown in Figure 1, or in Figures 2 and 3, the road-wheel is raised off the ground. The testing device, if desired, may be mounted on any suitable stand and a jack for raising the wheel may be incorporated in the said stand.

It is to be understood that the invention is not restricted to the precise constructional details described, as, obviously, various modifications may be made without departing from the invention. For example, interchangeable blocks 19 may be provided so that the device may be applied to pneumatic or solid tyres as required.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to

be performed, we declare that what we claim is:—

1. A device for testing the brakes of road-vehicles, comprising in combination an external driving attachment (e.g. a disc) adapted to be operatively connected with any one road-wheel of a vehicle at a time (e.g. to the tyre at a plurality of points), two levers pivoted to said attachment co-axially with the wheel, one of which levers constitutes a handle or is operatively connected to a handle or the equivalent, whereby the road-wheel can be manually rotated, and a measuring appliance (e.g. a spring-balance) linked between the two levers to give an indication of the turning effort applied when the road-wheel is braked.

2. A device according to Claim 1, characterised by a ratchet-wheel or the equivalent on said attachment arranged co-axially with the vehicle road-wheel, and a pawl or its equivalent pivotally mounted on one of said levers and arranged to engage the ratchet-wheel, for the purpose set forth.

3. The devices for testing the brakes of road-vehicles, substantially as hereinbefore described, or as diagrammatically illustrated in the accompanying drawings.

Dated this 4th day of April, 1928.
BOULT, WADE & TENNANT,
111/112, Hatton Garden, London, E.C. 1,
E.C. 1,
Chartered Patent Agents.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1928.

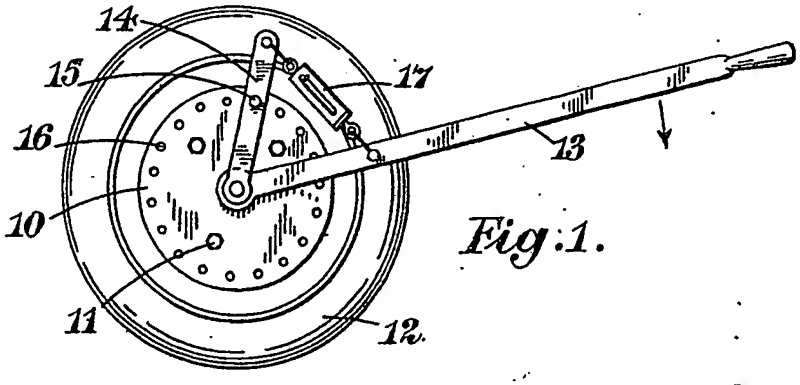


Fig. 1.

Fig. 2.

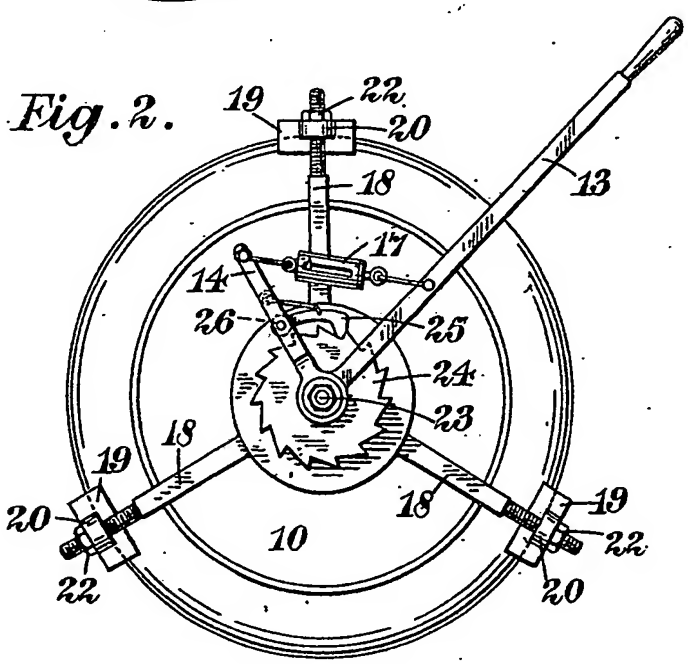
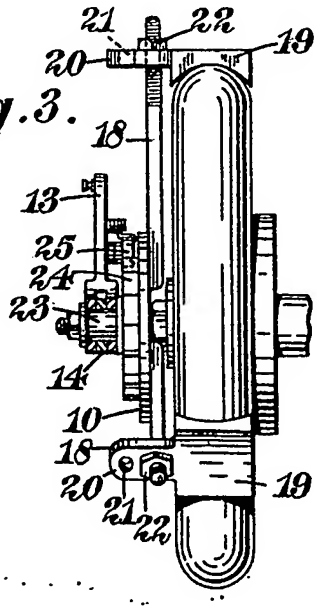


Fig. 3.



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